CRUSTACEA DECAPODA

BY

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only Decapod Crustacean collected by Swedish Deep-Sea Expedition is a male ging to the genus *Munidopsis* of the y Galatheidae. CHACE (1942) estimated this genus comprises about 115 species; of DOFLEIN and BALSS (1913) have tabulated ccording to the depths at which they are n to occur and according to their known aphical distribution. The majority of the es are listed as abyssal, *i. e.* from 800 m. wards, and of these 46 are said to be nic. But only four of these species occur 4,000 m. namely, *Munidopsis abyssorum* ILNE-EDWARDS & BOUVIER, *M. antonii* ILNE-EDWARDS, *M. crassa* SMITH and *M. iti* (A. MILNE-EDWARDS). Six other spe- however, occur at depths exceeding 3,000 - see list appended on p. 244.

fortunately, many of the species of the s *Munidopsis* are known from only one or y few specimens so that it is impossible to e how much variation may occur with age sex. The differences between certain es are apparently slight and it is possible some may prove to be synonyms. The men before me is certainly closely related vo of the abyssal species namely, *Muni- s subsquamosa* HENDERSON from the Paci- nd Indian Oceans and *M. crassa* SMITH the North Atlantic and is, I think, able to the latter.

Munidopsis crassa S. I. Smith 1885.

H, S. I., 1885, p. 494. (Holotype, ♀).

H, S. I., 1886, p. 645 (p. 41 of reprint), IV. (Holotype and 2 ♀♀, 1 ♂).

MILNE-EDWARDS & BOUVIER, 1893, p. 275 (in Table). No new record.

FAXON, 1895, p. 86 (compared with *M. subsquamosa* var. *aculeata*). No new record.

BENEDICT, 1902, p. 318 and p. 276 (in key). Only the locality of the holotype mentioned.

DOFLEIN & BALSS, 1913, p. 176, p. 177 (in Table). No new record.

BOUVIER, 1922, p. 47, pl. I, fig. 5 (natural colouration). 1 ♂.

CHACE, 1942, p. 73 (in key). No new record.

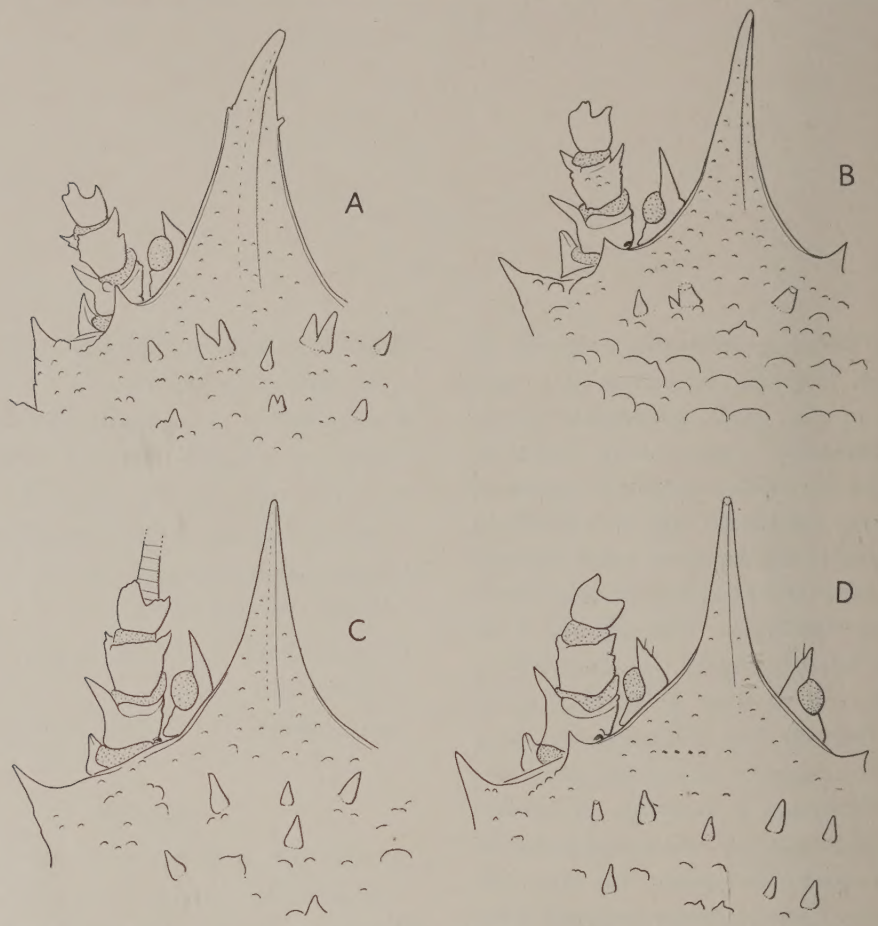
Occurrence

St. 313. 29° 48′ N, 17° 39′ W—30° 05′ N, 17° 18′ W 4,267—4,255 m. June 16th 1948. 1 ♂.

(See map on p. 28 of Reports of the Swedish Deep-Sea Expedition 1947—1948, vol. II, Zoology Fasc. 1.)

Recorded distribution

The species is known only from a small number of specimens. Three females and one male were obtained by the U. S. 'Albatross' at three stations off Cape Hatteras, between 36° to 40° N and 63° to 68° W in 1,742—2,640 fms. (3,185—4,791 m.). One male specimen was obtained at 46° 17′ 30″ N, 30° 25′ W in 4,380 m. by the Prince of Monaco's Expedition in 1910 although it was not described by BOUVIER until 1922. DOFLEIN & BALSS (1913, p. 177) appear to have listed this latter locality twice, as »Westeuropa 4,380 m.» and »Azoren 4,360 m.» The locality is almost due north of the Azores but is too far west to qualify as a European record.

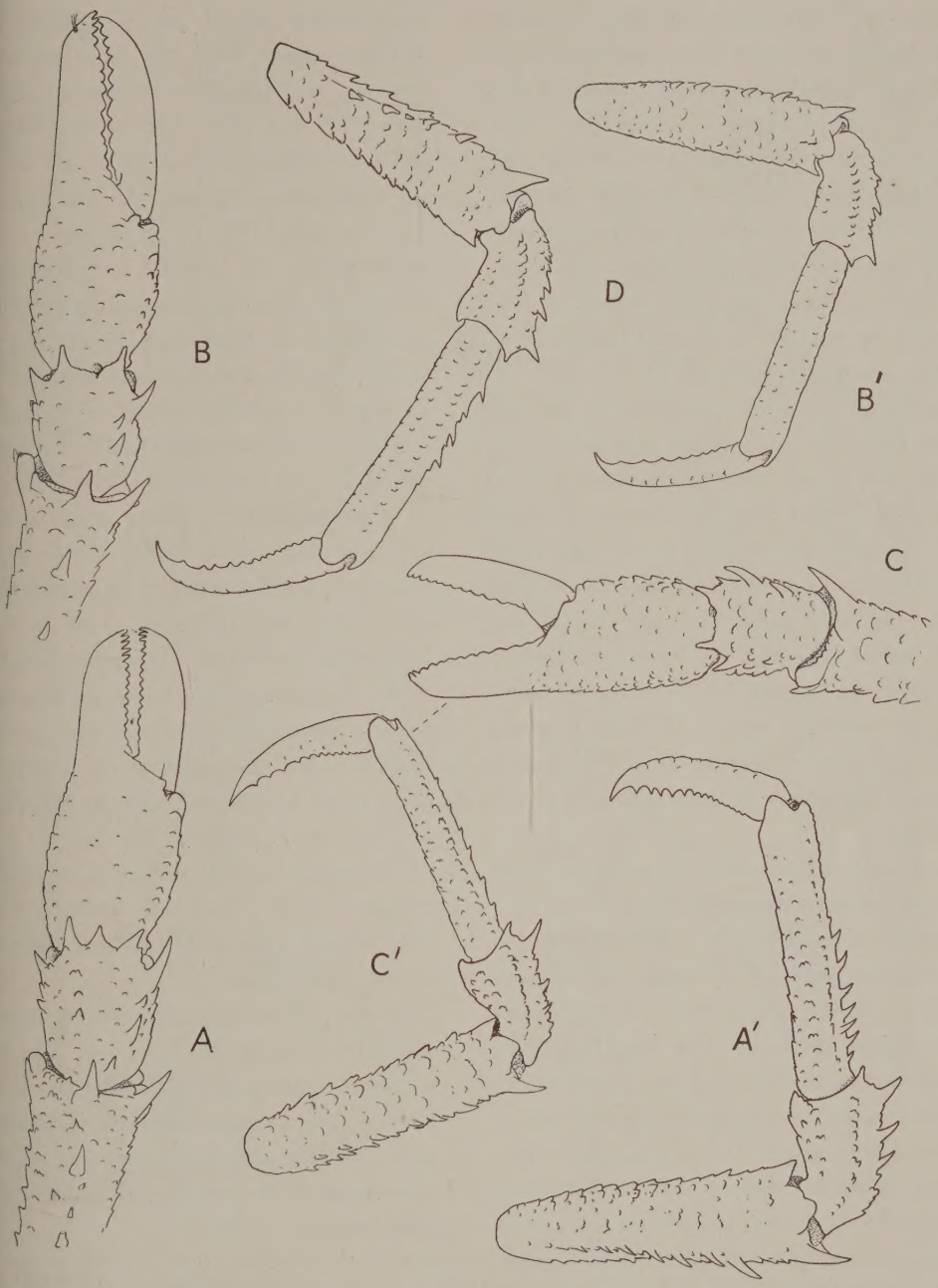


Text-fig. 1. Anterior portion of carapace, in dorsal aspect, showing the eye-stalk and left antennal peduncle, of: A. *dopsis crassa* SMITH from the Swedish Deep-sea Expedition. B. *Munidopsis subsquamosa* HENDERSON, lectotype Station 237, off Yokohama (length of carapace, including rostrum = 37 mm.). C. *Munidopsis subsquamosa* var. *a* HENDERSON from Station 146, between Marion Island and the Crozets. (c. l. = 43.5 mm.). D. *Munidopsis subsqu* var. *aculeata* HENDERSON from Station 302, West of Patagonia (c. l. = 45 mm.). All × 2.5.

Description

The general appearance of this rather robust specimen is shown in the photographs reproduced in Plate I. When fully stretched, the body must measure approximately 90 mm. in total length.

The *carapace*, including the rostrum, measures 45 × 28 mm. and the portion behind the rostrum is rather longer than wide. The dorsal surface is convex from side to side; the regions are well defined and closely beset with granules which tend to be spiniform on the gastric region; posteriorly the granules are replaced by short striae arranged medially in transverse, laterally in somewhat oblique, rows. The rost which is approximately half as long as carapace, is broad (being at its base one- the width of the carapace), narrowly trian strongly carinate and upcurved at the The lateral margins of the rostrum are sh defined in the proximal two-thirds — u the bend, where there is a pair of m spinules, that on the right being the posterior of the two (see Text-fig. 1. A). frontal margin of the carapace bears on side a distinct supra-antennal spine whi about as large as the anterolateral s Behind this, on the lateral margin, is a l



ig. 2. Distal portion of left cheliped, and pereiopod IV (right or left) of: A and A'. *Munidopsis crassa* SMITH from sh Deep-sea Expedition. B and B'. *Munidopsis subsquamosa* var. *aculeata* HENDERSON from Station 146. C and C'. *dopsis subsquamosa* HENDERSON, lectotype from Station 237. D. *Munidopsis subsquamosa* var. *aculeata* HENDERSON from Station 302. All x approx. 2.5.

ose lobe (that on the left bears a subsidiary e), followed by two spines and a few ules (Plate I, dorsal aspect). Immediately nd the posterior branch of the cervical furrow is a sharp spine followed by a number of rather prominent striations. The posterior border is raised and emphasised by two parallel rugose crests of which the posterior is the less

prominent and bifurcates laterally. A wide smooth trench separates these marginal crests from the striae on the posterior portion of the carapace (Plate I, upper photograph). The thoracic sternum is smooth as shown in the lower photograph; the four anterior sternites are fused although three transverse ridges, each slightly interrupted medially, mark the boundaries between them; the last sternite is free and has a prominent transverse carina (between the coxae of pereiopods V).

No attempt was made to straighten out the *abdomen* when the photographs were taken, but most of the details are nevertheless visible. Somites 2 and 3 each bear two strong transverse carinae, somite 4 has only one such carina while somite 5 has an indistinct ridge near its anterior margin. The sixth somite and the tail fan are seen in dorsal aspect in the lower photograph (Plate I) where the tail has been turned back slightly in order to expose the last thoracic sternite. Some traces of granulation are present, notably on the pleura of somite 6 and on the the tail fan.

The *eye-stalk*, which is slightly movable, bears a short apical spine projecting beyond the very pale corneal area (Text-fig. 1 A). The details of the *antennal peduncle* are shown in the same figure and in the photograph of the dorsal surface of the specimen; the long flagellum, which measures at least 110 mm., had unfortunately become detached on each side and is therefore not shown in the photographs. The *antennule* is rather shorter than the rostrum and the basal segment of the peduncle is armed with two spines of which the inner is the longer.

The *chelipeds* are somewhat more robust than the walking legs and a trifle shorter than pereiopods II, reaching the distal end of the propodus. The movable finger or dactylus is a little longer than the dorsal margin of the palm. The latter is rather longer than high and somewhat granulose, especially near the upper and lower margins (Text-fig. 2 A). The carpus is slightly longer than wide; the anterior margin (immediately behind the chela) bears a ro of three spines while the inner margin be a strong, and the outer margin a small, is spine. There is also a hint of two longit lir series of spines on the dorsal surface he are more pronounced on the left than t right cheliped). The merus is armed with hr distal spines, one of which is ventral and th not seen in dorsal aspect (see however the ow photograph in Plate I). Behind the n di distal spine is a mid dorsal series of f e six spines. The arrangement of the spine a rugosities on pereiopods II—IV is shown ai clearly in the photographs (Plate I). Pere op IV is represented in Text-fig. 2 A; the dac yl which is about three-fourths the length t propodus, bears a series of 14 crenulation a teeth on its ventral margin, those on the is half being the largest. The propodus, wh h rather more than five times as long as ri bears a proximal dorsal series of spines T carpus, equal in length to the dactylus a bears three prominent spines on the dista h of the dorsal margin. The merus, wh n rather longer than the propodus, is consid ub enlarged at its distal end. Pereiopod V s the reduced and modified form charact is of the Galatheidae.

Pleopods 1 and 2, the copulatory appen g are represented in Text-fig. 3 A. The ter in segment of pleopod 1 is leaflike and som h folded. The terminal segment of pleopo 2 shown in four different aspects; at its bas is short projecting spur (at the distal end t main segment or shaft).

Remarks

This fine specimen was captured in e water off the Canary Islands. CHACE pp. 72—75) gives a key to the determin of the Western Atlantic species of the n *Munidopsis* according to which this spe is referable to *M. crassa* except that the ment »frontal margin of carapace betwee base of rostrum and anterolateral spine pr

. 3. Pleopods 1 and 2, the male copulatory appendages of: A. *Munidopsis crassa* SMITH from Swedish Deep-sea ion. B. *Munidopsis subsquamosa* var. *aculeata* HENDERSON from Station 302. C. *Munidopsis subsquamosa* var. HENDERSON from Station 146. D. *Munidopiss subsquamosa* HENDERSON from Station 237. A—C x 5, D x 6.

narmed» hardly applies. As shown in ig. 1 A, the spine above the antennal cle is well formed, as also is that in the of *M. crassa* figured by SMITH (1886,). I have been unable to compare this ien with any of those previously referred to *M. crassa* but it seems to agree with SMITH's figure, which is of a female, in most respects. SMITH says that the rostrum is nearly horizontal whereas, in the specimen before me (as also in the male figured by BOUVIER, 1922) the distal portion is markedly upturned. The most

prominent spines on the gastric region, immediately behind the rostrum, are bifid not single as in SMITH's figure. (Text-fig. 1 A). The anterior lateral spine (that immediately behind the anterior branch of the cervical groove) is more broadly triangular and is followed by two instead of four spinules.

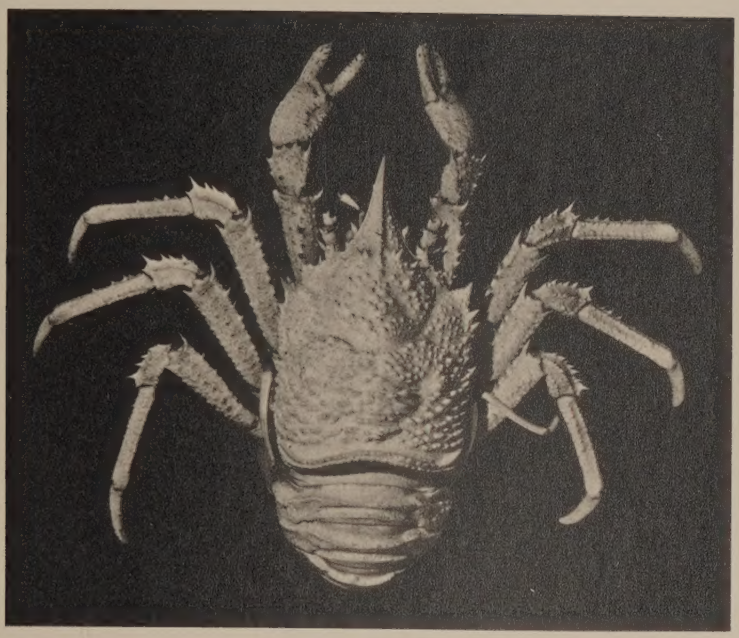
The species most closely related to *Munidopsis crassa* is *M. subsquamosa* HENDERSON and its varieties *aculeata* HENDERSON (1888, pp. 152—3) and *pallida* ALCOCK (1894, p. 331, 1901, p. 268, Illust. 'Investigator' Crust. pl. xiii, fig. 7). This species also is known from only a few specimens; the types of *M. subsquamosa* consist of a male specimen from Japan, which I select as the lectotype, and 'the softened remains of another' male. The variety *aculeata* is represented by a male specimen from west of Patagonia and a male specimen from between Marion Island and the Crozets. ALCOCK does not say how many specimens of the variety *pallida* he obtained, but I infer that there was only one male. DOFLEIN & BALSS (1913, p. 155) record one female of the variety *pallida* from off Zanzibar. In addition to these, FAXON (1895, p. 86) recorded two males and an ovigerous female of *M. subsquamosa* var. *aculeata* from the Pacific side of Central America.

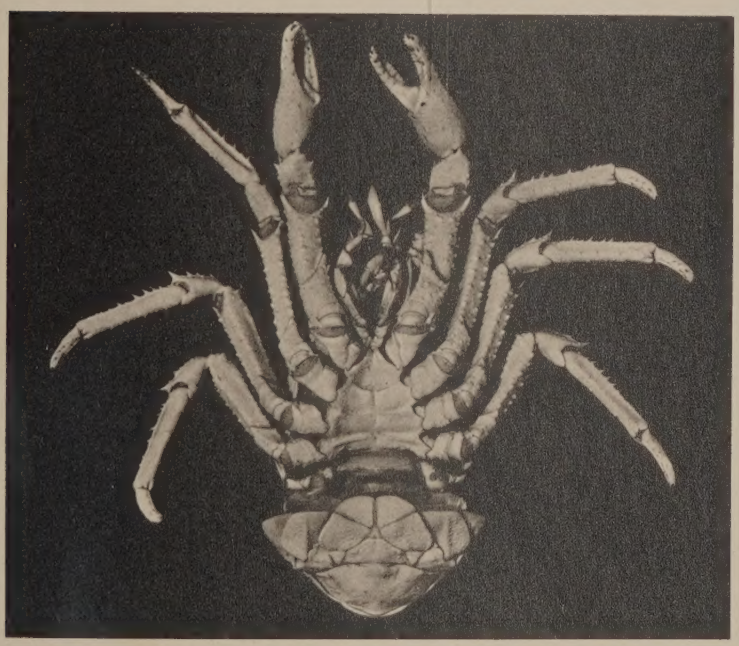
Of these, I have only seen the three 'Challenger' specimens described by HENDERSON (the damaged specimen can be discounted). As the illustrations show, these specimens exhibit considerable variation as regards length of rostrum, the nature of the sculpturing of the carapace and appendages, the presence or absence of a supra-antennal spine, the size and form of the eye-stalk, etc. (*c. f.* Text-fig. 1, B, C, and D and Text-fig. 2, B B', C C' and D). Although the cheliped of the specimen from west of Patagonia has not been figured, it is very similar to that of the specimen from between Marion Island and the Crozets (Text-fig. 2 B). The Swedish Deep-Sea Expedition specimen referred to *M. crassa* has a longer,

LIST OF DECAPOD CRUSTACEA RECORDED FROM DEPTHS OF 3,000 M. (= 1,640 FATHOMS) OR

Name of species	Depth in metres
REPTANTIA.	
Family Maiidae.	
Chionoecetes tanneri Rathbun	35–3
Family Dorippidae.	
Ethusina abyssicola S. I. Smith	1,230–4
» *challengeri* Miers	3,300–4
» *gracilipes* Miers	1,280–3
Family Paguridae.	
Parapagurus pilosimanus S. I. Smith	450–4
Family Galatheidae.	
Munidopsis abyssorum A. M.-Edw. & Bouvier	4,0
Munidopsis antonii (A. M.-Edwards)	2,500–4
» *bairdii* S. I. Smith	2,750–3
» *beringana* Benedict	3,0
» *crassa* S. I. Smith	4,360–4
» *latirostris* Faxon	3,0
» *parfaiti* (A. M.-Edwards)	4,260–4
» *reynoldsii* A. M.-Edwards	3,0
» *subsquamosa* Henderson	3,0
» » var. *aculeata* Henderson	2,400–3
» *subsquamosa* var. *pallida* Alcock	2,959–4
» *vicina* Faxon	3,060–4
Galacantha diomedae Faxon	1,200–1
Family Eryonidae.	
Willemoesia forceps A. M.-Edwards	3,0
» *indica* Alcock	2,396–2
» *inornata* Faxon	2,420–2
» *leptodactyla* (W.-Suhm)	2,510–2
NATANTIA.	
Family Glyphocrangonidae.	
Glyphocrangon caecescens W. Mason	3,0
Family Crangonidae.	
Pontophilus abyssi S. I. Smith	3,200–3
» *challengeri* Ortmann	2,010–2
» *occidentalis* Faxon	1,778–1
» *profundus* Bate	4,0

more upcurved rostrum, a more pron supra-antennal spine and a shorter sp the eyestalk than in any of the 'Cha specimens (Text-fig. 1 A). Also, as sh Text-fig. 2, *M. crassa* has relatively





s on the chela, and three spines instead
y two on the distal dorsal margin of the
s of the cheliped; moreover, the fourth
pod is more robust, with the spines on the
margin of the carpus and propodus
developed, than in any of the 'Challenger'
nens of *M. subsquamosa*. The copulatory
ods of the 'Challenger' specimens are
ented in Text-fig. 3, B—D for comparison
hose of *M. crassa* but again they differ
what from each other. In *M. crassa* the
of pleopod 2 is relatively longer and more
r, and the twisted terminal blade is
vely shorter, than in any of the *subsqua-*
material.

present it is difficult to assess these differences and the distribution of the two supposed species is rather curious. *M. crassa* is restricted to the Northern Atlantic Ocean, whereas *M. subsquamosa* and its varieties is recorded from both sides of the Pacific Ocean and from the Indian Ocean. Until more material is available for study I prefer to keep the two species separate, although later on they may have to be regarded as one widely distributed and very variable species.

The numerous bathypelagic prawns belonging to the families Penaeidae, Hoplophoridae, Nematocarcinidae, Pandalidae, etc. have been omitted from the list on p. 244. These are often stated to have a very wide bathymetric range, such as 0—3,250 or 731—5,390 m.

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